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ABSTRACT

This study compared the well-being of children born to mothers younger than 17 years old(very young teens), 18 to 19 years old (older teens), and mothers in their early twenties. Measures of well-being were assessed in five domains: (1) health and psychological well-being; (2) quality of home environment; (3) cognitive development and educational attainment; (4) behavior problems and substance abuse; and (5) sexual experiences and first births. The study also examined the effects of mother's age at first birth on child well-being. Data were drawn from the Longitudinal Survey of Youth-Child Supplement (NLSY-CS) and the National Survey of Children (NSC). Major findings indicated that although controlling for maternal background characteristics reduced the effects of teen motherhood on child well-being, the deleterious effect of being born to young teens remained statistically significant on children's cognitive achievement scores, grade repetition, teacher rating of school performance, and home environment quality. The deleterious consequences of teen childbearing extended to their subsequent children. There was a persistently negative effect of early childbearing in the cognitive domain. The NLSY-CS revealed that 4- to 14-year-old children of the youngest teens performed more poorly on tests of cognitive ability, and NSC results showed that the offspring of teens were more likely to be retained and less likely to be perceived by their teachers as performing favorably in high school. Behavior difficulties such as running away, early sexual activity, and teen motherhood emerged among children in the NSC. (Contains 20 references.) (Author/JC)

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CHILDREN BORN TO TEENAGE MOTHERS: ANALYSES OF THE NATIONAL LONGITUDINAL SURVEY OF YOUTH - CHILD SUPPLEMENT AND THE NATIONAL SURVEY OF CHILDREN

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CHILDREN BORN TO TEENAGE MOTHERS: ABSTRACT

The objective of this analysis was compare outcomes for children born to teen mothers with outcomes for children born to somewhat older mothers on a variety of measures of well-being. In the present analysis we primarily focus on a specific part of the childbearing age continuum -- teenage mothers versus those who delay motherhood until their early twenties (i.e., ages 20 to 21). The assumption behind this particular contrast is that it is unrealistic to assume that policy interventions would persuade young women already predisposed to become adolescent mothers to postpone motherhood into their mid or late twenties. We distinguished, therefore, between the children born to young teens ($\leq$ 17 years old) and those born to somewhat older teens (18 to 19 years old). We examined the effects of being born to a teen mother for children in five substantive domains: health and psychological well-being; the quality of the home environment provided to the child; cognitive development and educational attainment; behavior problems and substance abuse; and sexual experiences and first births. In order to assess whether the effects of teen motherhood are felt for subsequent offspring, we also examine the effects of mother's age at *first* birth on measures of child well-being. We use two data sets with complementary age groups -- the National Longitudinal Survey of Youth - Child Supplement and the National Survey of Youth -- to examine effects in childhood, adolescence, and young adulthood.

- Using no statistical controls for any maternal characteristics other than mothers' age at the birth of the focal child, we found few marked differences when the children of teen mothers were compared to the children of 20- to 21-year-olds. Notable exceptions were that children of the youngest teen mothers were less likely to have received well-baby care in their first year of life, had home environments that were less nurturing and stimulating, and obtained lower cognitive achievement scores than their peers whose mothers were 20 to 21 at their births.

- In addition, the adolescent children of very young teen mothers as well as those born to 18- to 19-year-olds were more likely than the 20 to 21 year old contrast group to have voluntary intercourse before age 17. Moreover, the offspring of the youngest teens were more likely to have a teen birth themselves.

- Controlling for maternal background characteristics reduces the observed effects of teen motherhood on indicators of child well-being, but the deleterious effect of being born to a mother aged 17 or younger (compared to a 20 to 21 year old mother) remains statistically significant on children's cognitive achievement scores, grade repetition, teacher rating of school performance, and the quality of their home environments, even net of controls. The offspring of 18- to 19-year-olds are comparatively more likely than those of 20- to 21-year-olds to run away from home.

- Our results provide support for the premise that to the extent that there are negative effects of teen childbearing for children, the deleterious consequences generally extend to the subsequent children of teen mothers as well. We found similar patterns of results when we classified children both according to mothers' ages at their own births as well as mothers' ages at first birth.

- Our results show a persistently negative effect of early childbearing in the cognitive domain. Data from the NLSY-CS revealed that 4 to 14 year olds born to the youngest teen mothers performed more poorly on tests of cognitive ability, and NSC results showed that the offspring of teens were more likely to be retained and less likely to be perceived as performing favorably by their teachers by the time they reach high school age. In addition, behavior difficulties emerged among children in the older data set, the NSC -- running away from home, early sexual activity, and teen motherhood -- that were not necessarily forecast by results from the Behavior Problems Index in the NLSY-CS.

CHILDREN BORN TO TEENAGE MOTHERS: ANALYSES OF THE NATIONAL LONGITUDINAL SURVEY OF YOUTH - CHILD SUPPLEMENT AND THE NATIONAL SURVEY OF CHILDREN

INTRODUCTION

More than half a million children are born to teenage mothers each year in the United States (National Center for Health Statistics, 1994). Despite the popular assumption that there are serious adverse consequences for children's development and well-being when mothers themselves have not reached adulthood, the issues related to whether teenage childbearing entails deficits for children are complex, and available research has not resolved all of them. For example, what is the appropriate comparison group for determining whether the children of teen mothers have less favorable outcomes -- all other children, children whose mothers postpone childbearing another year or two, or children whose mothers delay childbearing into their early twenties, or older? Also, are there particular domains of child well-being where deleterious effects are especially strong, for example, emotional rather than cognitive development? Do the consequences of early motherhood remain steady across the life-cycle, or are they more or less apparent among younger versus older children born to teen mothers? Finally, are later-born children disadvantaged when a mother's first birth occurs when she is a teen? The aim of the current paper is to explore each of these questions empirically using two national data sets that studied children -- the National Longitudinal Study of Youth - Child Supplement (NLSY-CS) and the National Survey of Children (NSC).

BACKGROUND

TRENDS IN TEENAGE CHILDBEARING

Sexual activity, pregnancy, abortion, and childbearing among teens are among the most intensely debated topics on the public policy agenda. Currently, more than a million pregnancies occur each year to teens, most of them unintended (Forrest and Singh, 1990). In addition, rates of birth among teens in the U.S. are higher than birth rates among teens in other developed countries (United Nations, 1991, 1990). Moreover, the number of non-marital births and the proportion of teen births that occur outside of marriage are both continuing to rise. There

are now substantially more non-marital births than marital births among teens -- 368,451 versus 163,140 in 1991 (National Center for Health Statistics, 1993).

These trends are troubling because early pregnancy and childbirth are associated with a variety of social and economic difficulties. Because young mothers are more likely to be unmarried (National Center for Health Statistics, 1993) and to lack educational credentials, they often face poverty (Moore, Myers, Morrison, Nord, Brown, and Edmonston, 1993).

The poorer socioeconomic outcomes of families established by teen parents combined with a greater frequency of single parenthood among teen mothers have resulted in a substantially higher incidence of welfare receipt among teens compared with older mothers (Adams and Williams, 1990; Butler, 1992). Thus, among teen mothers who remain unmarried through their first-born child's first five years of life, three-fourths receive AFDC at some time during that interval (Moore et al., 1992). Because of their longer welfare spells (Committee on Ways and Means, 1993), young parents comprise a disproportionate share of the welfare population. It is estimated that more than half of all welfare recipients were teenagers at the time their first child was born (Moore, 1994).

EFFECTS OF EARLY CHILDBEARING ON CHILDREN

Researchers who have compared the children born to teenage mothers to those born to older mothers typically report less favorable outcomes. Despite overall declines in the incidence of low birth weight babies, babies of teens continue to be more likely to be underweight at birth (National Center for Health Statistics, 1993), a deficit that exposes them to a greater risk of illness and developmental difficulties (Strobino, 1987). The children of teenage mothers also tend to score somewhat lower on measures of cognitive development and school performance than children of delayed childbearers, and they have been found to be at greater risk of exhibiting behavior problems at home and in school (Baldwin and Cain, 1980; Brooks-Gunn and Furstenberg, 1986; Hayes, 1987). In a longitudinal study of adolescent mothers from Baltimore, Furstenberg, Brooks-Gunn and Morgan

(1987) documented elevated levels of grade repetition, delinquency and other behavior problems among the children born to teen mothers and earlier sexual experiences in comparison to their peers.

In the current study, we examine the effects of being born to a teen mother for children in five substantive domains: health and psychological well-being; the quality of the home environment provided to the child; cognitive development and educational attainment; behavior problems and substance abuse; and sexual experiences and first births. Not only does this strategy provide a broader assessment of the implications of maternal age at first birth for children's well-being (see Zill and Coiro, 1992), it allows us to examine the relative importance of fertility timing for different outcomes.

DO EFFECTS PERSIST OR INCREASE OVER THE CHILD'S LIFE COURSE?

There is some evidence that the deficits in social and emotional development may increase as the children of adolescent mothers grow older. For example, Furstenberg, Brooks-Gunn and Morgan (1987) found that, while as preschoolers the children born to teen mothers did not appear more problematic, by ages 15 to 17 they had notably higher rates of misbehavior than their counterparts born to mothers who were not teens. Moore (1986) found that the 12 to 16-year-old offspring of teen mothers were twice as likely to have repeated a grade, were more likely to be doing remedial rather than advanced work, held lower educational expectations, and received higher scores on an index of behavior problems than children born to delayed childbearers.

We systematically address the issue of whether there are increasing effects of being born to a teen mother in the present study by utilizing two national data sets of children with complementary age groups. Analyses on the NLSY-CS focus on effects for younger children and adolescents, ages 4 to 14 in 1990, while analyses of the NSC address outcomes in adolescence (among 12- to 16-year-olds in 1981) and young adulthood (youth ages 18 to 22 in 1987).

Although factors such as family structure, maternal education, family size, receipt of public assistance, the level of support from the young mother's parents, the amount of father involvement, and the parenting

behaviors of the adolescent mothers themselves are prominent among the mechanisms through which researchers have found the mother's age at first birth to indirectly affect child well-being (see Hofferth, 1987 for a review), the aim of this paper is *not* to illuminate the processes through which an early birth affects child well-being, but rather to document the extent to which there is an effect of being born to a teen mother.

ARE THERE EFFECTS ON LATER-BORN CHILDREN OF TEEN MOTHERS?

In addition, little is known about whether the disadvantages for children associated with teen motherhood remain the same for subsequent births. If immaturity in parenting is a key conduit through which teenage parenting translates into negative outcomes for children, for example, then it is possible that young mothers learn sufficiently from caring for their firstborns that later born children are not affected by their early entry into motherhood. However, if problematic life conditions associated with teen motherhood, such as poverty and family instability, remain relatively constant over the mother's fertility history, then one would expect risks to child development among the later born children as well. We examine this question directly. That is, in addition to investigating whether there are differentials in child well-being when children are classified according to their mother's age at their *own* births, we also investigate whether outcomes vary according to the mother's age at the time of their *first* births.

WHAT IS THE APPROPRIATE COMPARISON GROUP?

Teenage childbearing occurs disproportionately among teenagers from disadvantaged family backgrounds (e.g., Dillard and Pol, 1982; Moore et al., 1992). Moreover, teen mothers tend to have lower academic ability, lower educational aspirations, and to be from larger and single-parent families. The younger the mother, the more disadvantaged her background (Moore et al., 1992). These characteristics presumably account in part for differences in child well-being across children born to early and later childbearers.

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The literature examining the consequences of teenage childbearing for mothers and their children reflects an evolution in scope and methodological sophistication over the thirty years in which it has accumulated. Early work generally consisted of bivariate tables, including perhaps one or two control variables (e.g., Bacon, 1974), while later researchers recognized the non-random nature of teenage childbearing and the importance of disentangling the effects due to mother's age at child birth *per se*, from those of the negative socioeconomic circumstances associated with early childbearing.

Both the NLSY-CS and the NSC contain unusually complete set of multi-generational variables. Thus, in the present analyses, we are able to hold mother's socioeconomic background characteristics constant, such as whether she grew up in an intact family and the level of education of her parents, when we assess child development among the offspring of younger versus older mothers.

Having equalized insofar as it is feasible the background characteristics of teenage mothers, we then face an additional issue. Not only is it vital to take account of the maternal background factors that likely influence the well-being of the children of teen mothers, it is also essential to carefully consider which children represent the appropriate group for comparison with the offspring of teen mothers. How much delay in the timing of a first birth can reasonably be expected? Should we anticipate delays of a decade, say from ages 15 to 25, or is it more reasonable to expect delays of only a couple of years? In the present analysis we primarily focus on a specific part of the childbearing age continuum -- teenage mothers versus those who delay motherhood until their early twenties (i.e., ages 20 to 21).[1] The assumption behind this particular contrast is that it is unrealistic to assume that policy interventions would persuade young women already predisposed to become adolescent mothers to postpone motherhood into their mid or late twenties.

[1] However, to provide a fuller picture of the relative advantages of delaying childbearing into the late twenties, in Appendix B we present descriptive analyses of the relationship between fertility timing and child well-being and allow comparisons across a variety of categories of mother's age at birth.

In addition, we do not assume uniform effects of teenage childbearing. That is, we do not expect that the effects of being born to a mother who was 15 are necessarily the same as being born to a mother who was 18, although both births occurred to teenagers. Thus, we differentiate according to specific categories of teen motherhood.

THE PRESENT STUDY

To summarize, the aim of the current study is not to disentangle the causal mechanisms, such as poverty and single parenthood, by which the children born to teenage mothers may come to be at a disadvantage relative to their peers born to relatively older mothers, but rather to document the extent to which differences between the two groups exist. We examine a variety of indicators of child well-being and are concerned both with whether any effects of teen motherhood are the same throughout the child's life cycle and whether effects are the same across the mother's subsequent births. The primary focus of our analyses is on whether the children born to women in their early and later teens face greater risks to development than those whose mothers were ages 20 to 21 at their births, however, we provide supplemental tables that present proportions of selected indicators of child well-being across various categories of mother's age at birth (see Appendix B).

The following research questions guide our analyses.

1. To what extent are children disadvantaged by being born to a teenage mother?

2. Are the consequences of teen childbearing specific to certain domains of child well-being?

3. Do the negative consequences of being born to a teen mother vary according to the child's life cycle stage? That is, do risks to positive development tend to increase or decline as the children of teen mothers grow up?

4. To what extent do mother's background characteristics account for the negative effects of being born to a teen mother, if any?

5. Are there race differences in the effects of being born to a teen mother?

6. Are the subsequent children born to a teenage mother at a disadvantage, or just the first born?

To answer the question of how children of teen mothers compare to those of somewhat delayed mothers, we examine child well-being within five substantive domains: health and psychological well-being; the quality of the home environment provided to the child; cognitive development and educational attainment; behavior problems and substance abuse; and sexual experiences and first births. We utilize two complementary data sets in order to assess whether negative effects of early childbearing are detected in childhood, adolescence, and young adulthood. To address the question of what, if any, relative disadvantage is related to the mother's age at the birth of her child we begin with simple associations between measures of child well-being and mothers' ages at birth. Next, we account for the fact that teenage mothers tend to already be at notable economic and social disadvantage (factors associated with less positive well-being for offspring) even before they give birth, and estimate multivariate models holding maternal background factors constant. We repeat these analyses for children classified by their mother's age at *first* births to examine whether risks to child development remain constant over the fertility history of teen mothers.

Characteristics of the child also need to be considered in an examination of child well-being. Children cope with stress differently, and there appears to be a particular vulnerability among boys (Zaslow and Hayes, 1986). Moreover, previous researchers studying the processes by which maternal age at child birth affects children have uncovered inconsistent patterns of results across racial/ethnic groups (see Hofferth, 1987), making it important to control for the child's race/ethnicity in evaluating effects.

DATA

As previously discussed, we use data from two national, longitudinal data sets -- the NLSY-CS to examine outcomes among children and adolescents and the NSC to explore the consequences of teenage motherhood on outcomes measured in adolescence and young adulthood. We describe the data sets below.

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THE NATIONAL LONGITUDINAL SURVEY OF YOUTH - CHILD SUPPLEMENT (NLSY-CS)

The NLSY is a longitudinal survey of American youth who were 14 to 21 when the study began in 1979. Respondents have been followed annually since then. The sample includes an over-representation of blacks, Hispanics, and economically disadvantaged whites. The study has gathered information on a wide range of topics including: family background; maternal marital, fertility, and employment histories; education and employment of family members; and household composition. In 1986, when the subjects were 21 to 29, the NLSY data collection effort included a substantial battery of assessment information about the children of the women who had given birth. The children were reassessed in 1988, 1990, 1992, and 1994, and all newborn children were added to the sample. The present analysis draws upon assessment data collected on children in 1990. The sample is limited to children ages 4 to 14. Younger children are not old enough to have participated in the cognitive assessment tasks, while older children are few in number and rather unusual in that all were born to very young teen mothers.

Due to the nature of the NLSY-CS -- children born to a cohort of women who were ages 14 to 21 in 1979 -- we have a relatively truncated sample at the upper-most age range of mother's age at birth. Our oldest age at birth was 27 in this sample. Moreover, the age distribution of children is not random across mother's age at child birth. That is, due to the cohort nature of the sample of mothers, the children born to the oldest mothers are disproportionately younger. While most of our outcomes are either not sensitive to the child's current age (except perhaps in terms of maternal recall), for example health care in the first year of life, or are age-standardized, for example, the PIAT tests of cognitive achievement, we control for child's age in our multivariate models.

THE NATIONAL SURVEY OF CHILDREN (NSC)

The NSC is a nationally representative household survey of children aged 7-11 who were living in the contiguous United States in 1976. A subset of the children were re-interviewed in 1981 when they were ages

12-16 and again in 1987 when they were ages 18 to 22. The original wave of interviews, sponsored by the Foundation for Child Development, was designed to be a broad assessment of the social, physical, and psychological characteristics of U.S. children, and of the family and neighborhood circumstances in which they were growing up. Up to two children between the ages of 7 and 11 in each household and the parent most knowledgeable about them, usually the mother, were interviewed in person, yielding a sample of 2,301 children from 1,747 households. Black households were oversampled and approximately 500 black children were in the sample.

The primary focus of the second wave of interviews conducted in 1981 was to examine the consequences of marital disruption for children's development and well-being. The third wave of interviews, conducted during the Spring and Summer of 1987, was funded by the National Institute of Child Health and Human Development, the Assistant Secretary for Planning and Evaluation of the Department of Health and Human Services, the Ford Foundation, and the Robert Wood Johnson Foundation. The primary aim of the third wave was to obtain data on the impact of early pregnancy and parenthood on the lives of teenage parents. Over 1150 youth were interviewed via telephone, as was one of the youth's parents, usually the mother. Information was obtained on family relationships, educational aspirations, school progress, substance use, the timing of initial use, and problems related to current use. The sample for these analyses totalled 1143.

VARIABLES

Dependent Variables

We examine the effects of being born to a teen mother for outcomes in five substantive domains: child health and psychological well-being; the quality of the home environment provided to the child; the child's cognitive development and educational attainment; behavior problems and substance abuse; and sexual experiences and first births. We attempt, to the extent possible, to investigate comparable outcomes across the two data sets. However, one of the advantages of the current study's use of two separate data sets is our ability to focus on

outcomes that are appropriate measures of well-being at different developmental stages. For example, for the NLSY-CS children, who range in age from 4 to 14, we examine the consequences of the mother's age at first birth for the child's scores on tests of cognitive ability. While, for the older youth and young adults we examine with the NSC, we include measures of sexual activity, first births, and drug use. Exhibit 1 provides detailed descriptions of the dependent variables we investigate.

Independent Variables

Mother's age at focal child's birth

In both data sets, we used available data to construct a variable for mother's age at the birth of the focal child. Due to the nature of the NLSY-CS (the mothers are part of a cohort of youth surveyed annually), direct measures of the mother's age at the birth of the focal child are provided. However, the NSC, does not provide direct measures of the mother's age at the birth of the focal child. We created the variable from information on the biological mother and focal child birth dates. Since some children in each sample are first or only borns, mother's age at the birth of the focal child is also the mother's age at *first* birth in those cases. We construct five groupings of mother's age at focal child's birth -- ≤17, 18-19, 20-21, 22-24, and 25+ -- to differentiate according to very young versus slightly older mothers and those who "delayed" childbearing to varying degrees. We created dummy variables for each category, using the 20 to 21 group as the contrast group in our multivariate analyses.

Mother's age at first birth

Like mother's age at the birth of the focal child, data on mother's age at first births were provided by mothers in the NLSY-CS. It was necessary to construct a variable for the NSC. At each wave of the NSC, a parent survey was completed by each focal child's parent or parent substitute. Parent respondents included biological mothers, biological fathers, stepmothers, stepfathers, adoptive mothers, grandmothers, etcetera. We

selected biological mothers and created their ages at first birth from a series of items. We formulated a complex algorithm that incorporates the mother's date of birth and the birth dates of all biological children, including those outside the home. The final variable is based on the difference between the mother's birth date and the birth date of her oldest child. It should be noted that mothers were not asked to include information about deceased children. Thus, unless the mother's oldest or only child is the focal child, we have no way of determining whether the mother's oldest child has been included in the available data. Consequently, age at first birth may be underestimated for some mothers.

In both data sets there is a broader distribution of mothers' ages at first birth, allowing us to create the following categories: ≤15, 16-17,18-19, 20-21, 22-24, and 25+. As before, we use the 20 to 21 age group as our comparison group in multivariate analyses.

Child characteristics

In our multivariate models we control for the age of the child (in months); whether the child is black; and in the NLSY-CS only, whether the child is Hispanic.

Mothers' background characteristics

Appendix A provides means and proportions on mothers' background characteristics for each of our categories of mother's age at focal child's birth and mother's age at first birth for both the NLSY-CS and the NSC.

METHODS

We estimate multivariate models holding constant pre-existing characteristics of young mothers and their families that may account for observed associations between early childbearing and child well-being. In analyses of the NLSY-CS, we include characteristics of the child's grandparents, including their level of education, whether

the grandmother was employed outside of the home, the mother's number of siblings, the mother's rural or urban residence at age 14, the presence of reading materials in her home, whether the mother lived with two biological parents at age 14, and whether the focal child was conceived out-of-wedlock. In the NSC, we control for whether the child's grandmother was ever on welfare, whether the mother ever lived apart from both of her parents while she was growing up, and for urban/rural residence and religion of both grandparents.

We assess the relative importance of each of these types of background factors in accounting for the well-being of children born to teen mothers by incrementally examining their contribution to observed associations. That is, we estimate three separate models. Model 1, includes dummy variables for each of our mother's age at focal child's birth categories, with 20-21 as the omitted group. Model 2 adds child's characteristics, such as age, race, and ethnicity. Model 3 adds mother's background characteristics, the child's birth order, and whether the child was conceived outside of marriage. In analyses of the NSC, Model 3 also includes whether the mother never wanted to have the focal child, whether the mother wanted the focal child later, and whether the mother was not in high school and had fewer than 12 years of education at the conception of her first child[2].

We use ordinary least squares (OLS) regression when the outcome being considered is continuous, such as cognitive test scores, and logit models when the dependent variable is dichotomous, such as being low birth weight. We begin with an examination of outcomes among the youngest children using the NLSY-CS, followed by comparable analyses of outcomes in adolescence and young adulthood using the NSC.

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[2] We were interested in exploring whether the inclusion of the mother's performance on the Armed Forces Qualifying Test (AFQT), a cognitive achievement measure changed our estimates of the effect of mother's age at the birth of the focal child on selected measures of child well-being. We found that mothers' AFQT scores were significantly associated with the child's level of behavior problems; mathematics, reading recognition, and reading comprehension scores; and the quality of the child's home environment. Disadvantages associated with being born to a teen mother on these measures remained statistically significant, but were reduced in magnitude when AFQT was added to our models.

We use life table analysis for two young adult outcomes, age at first voluntary sexual intercourse and age at first birth. We are interested in the occurrence of these through age 19, yet many focal youth were younger than 19 when last interviewed. The life table technique includes these censored cases. All available data are used to calculate the probability of the event of interest occurring during the time intervals we have specified.

Both the NLSY-CS and the NSC include more than one child per household.[3] We statistically account for the problem of non-independence by estimating (maximum-likelihood) standard errors based on Huber's formula (Huber, 1967) for individual-level data. We use the standard errors calculated using this procedure (estimated with the statistical package STATA) as the basis for determining the statistical significance of our parameter estimates.

RESULTS

EVIDENCE FROM THE NLSY-CS: CHILD OUTCOMES

We begin our analyses with the younger children, using data from the NLSY-CS. The outcomes we examine are organized by domain. We provide a brief overview of the bivariate results obtained by cross-classifying children by their mother's ages at their births (≤17, 18-19, 20-21, 22-24, 25+) and each measure of child well-being and testing for a statistically significant pattern of improvement associated with older ages at child birth. A detailed discussion of these findings and accompanying tables is presented in Appendix B. Here we focus on the results of multivariate models for the same outcomes. For these models we employ dummy variables for each age at first birth category, with 20 to 21 as the contrast group.

[3] In the NLSY-CS, 40% of the sample members are siblings. In the NSC, 25% of sample members are siblings.

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Relationships between Age of Mother at Focal Child's Birth and Child Well-Being

Health and Psychological Well-being

Bivariate Results

As shown in Appendix B, we examined whether there was a bivariate association between mothers' age at the birth of the focal child and several measures of health and well-being. Beginning with indicators of well-being at birth and during infancy, we observed that children born to teenage mothers are more likely to be classified as low birth weight than their peers whose mothers were older at the time of their births. While the offspring of the youngest mothers were no more likely to be taken for medical treatment for an illness, a greater percentage of the children born to teen mothers received well-baby care in the first year of life, perhaps owing to a greater reliance on medical assistance among the youngest mothers. The children of teen mothers are also more likely than children born to comparatively delayed childbearers to be classified as premature when 38 weeks is used as the criterion.

In terms of indicators of health and psychological well-being during childhood, fewer health or physical limitations were reported the older the age of the mother at the time the child was born. The exception were children born to the youngest mothers whose levels of difficulties were relatively low. Regarding cognitive limitations, there is a clear benefit to older ages at the birth of the child. Emotional limitations were similar across the three youngest mother's age categories, with significantly fewer emotional limitations reported among children whose mothers were 22 to 24, and still lower percentages among those whose mothers were at least 25 at when they gave birth. While compared to those whose mothers were 24 or more at child birth, smaller percentages of the children of teen mothers were reported to have visited a psychiatrist in the past year. However, their receipt of care was not markedly different from their peers whose mothers were in their early twenties. Children born to women in their early and late teens as well as those in their early twenties were all more likely to have health conditions requiring attention from a doctor and to require the use of medicine or drugs when

compared to their peers whose mothers were older at their births. Differential use of medical equipment according to mother's age at the birth of the child were not as apparent.

Multivariate Results

Table 1 provides odds ratios for models predicting low birth weight for NLSY-CS children ages 4 to 14 in 1990. Beginning with Model 1, we find that none of our measures of mother's age at focal child's birth are statistically associated with low birth weight. Moreover, race and birth order are the only variables that significantly predict the probability of being born underweight. Specifically, black children are roughly two times as likely to be low birth weight than white, non-Hispanic children and higher birth orders are associated with greater probabilities of being born with low birth weight. Not surprisingly, Model 3, which adds controls for maternal background characteristics also fails to uncover a statistically significant association.

Table 2 focusses on well-baby care. We see in Model 1 of Table 2 that children born to the youngest mothers ($\leq$ 17) are nearly twice as likely (odds = 1.8) to receive well-baby care in the first year of life in comparison to those whose mothers were 20 to 21 at their births, but this association does not remain statistically significant when we introduce controls for child characteristics and mothers' backgrounds in Model 3.

Table 3 provides odds ratios for models predicting child's disabilities or limitations, and here too we observe that the odds of having a disability or limitation are no greater for children born to teen mothers than they are for those whose mothers were in their early twenties. The same pattern is apparent in Table 4. Net of controls for background characteristics, the offspring of teen mothers are no more likely than their peers whose mothers were 20 to 21 at their births to have visited a psychiatrist in the previous year.

Cognitive Stimulation and Emotional Support in the Home Environment

Bivariate Results

The HOME-SF is an age-standardized indicator of the quality of the home environment provided to the child based on both maternal report and interviewer observation. We investigated impacts of mothers' ages at the child's birth on both the total score as well as two sub-scales. One taps the level of cognitive stimulation provided to the child, based on, for example, whether the mother reads to the child, and another taps emotional support, based on, for example, an interviewer rating of the amount of warmth the mother expressed toward the child during the interview. Our bivariate results reveal clear advantages to the children of comparatively older mothers in terms of the quality of the home environment provided to the child.

Multivariate Results

The HOME-SF is quasi-continuous (with a mean of 100) so we utilize OLS regression to assess the effects of mother's age at the focal child's birth. Table 5 provides the results of our multivariate analyses of this outcome. As shown, when we examine the simple association between the age of the mother at the focal child's birth and HOME-SF score, children born to the youngest mothers (-3.5) are at a clear disadvantage in comparison to those whose mothers were in their early twenties at their births. In contrast, HOME-SF scores of children whose mothers were still teens, but slightly older at their births (18-19 years old) were not statistically different from children whose mothers were in the 20 to 21 age category. Strikingly, when we hold mother's background characteristics constant, the deleterious effect of *early* teen childbearing on the quality of the home environment provided to the child, actually increases in magnitude (-4.4). Moreover, when background characteristics are controlled, we find that having a mother who was 18-19 at the focal child's birth (-1.5) significantly lowers the quality of the child's home environment as measured by the HOME-SF.

Cognitive Development and Academic Achievement

Bivariate Results

There is a clear pattern of improvement in children's cognitive achievement as mother's age of the focal child increases. This pattern holds across three tests of cognitive achievement -- math, reading recognition, and reading comprehension. Each test is age-standardized with a mean of 100, and the clearest deficit is detected among children born to the youngest mothers.

Multivariate Results

Tables 6 through 8 provide OLS results for models predicting children's performance on the three Peabody Individual Achievement (PIAT) tests of mathematics, reading recognition, and reading comprehension, respectively. In each case, we observe that children born to the youngest teen mothers are at a statistically significant disadvantage compared to their peers whose mothers were 20 to 21 at their births in terms of performance on these tests. Specifically, children whose mothers were 17 or less at their births scored roughly 4 points lower in mathematics and reading recognition, and three points lower in reading comprehension than children in the contrast group, even when mother's socioeconomic backgrounds are held constant. Recall that each test has a mean of 100 and a standard deviation of 15, so the magnitude of these effects is notable. Also noteworthy in these tables is the fact that the cognitive performance of the children of comparatively older teen mothers are not statistically different from that of children whose mothers were 20 to 21 at the time of the focal child's birth.

Behavior Problems

Bivariate Results

According to scores on the mother-rated index of problem behavior presented in Appendix Table B-6, the Behavior Problems Index (BPI), there is a negative relationship between fertility timing and the likelihood that children exhibit conduct disorders, except that the children of 20- to 21-year-olds are not distinguishable from those born to teen mothers. The older the mother at the birth of the focal child, the fewer the number of reported behavior problems.

Multivariate Results

The Behavior Problems Index, like the cognitive tests, is age-standardized with a mean of 100. Table 9 presents the results of predicting children's behavior problems from mother's age at the focal child's birth. Model 3 is once again net of characteristics of the mother's backgrounds. These results are counter to expectation. Children whose mothers were teens at their births have significantly *fewer* behavior problems than their peers in the omitted group. Coefficients for early ($\leq$ 17) and later (18-19) teen birth categories are roughly -3 and -2 , respectively. Recall that the higher the score, the greater the number of behavior problems.

Relationships between Age of Mother at First Birth and Child Well-Being

To address the question of whether there are effects of teenage motherhood on her subsequent children, as before, we start with bivariate tabulations, followed by multivariate models. In these analyses we categorize children according to the ages of their mothers at the time of their *first* births. For this cut, we are able to distinguish between children born to teen mothers who were ≤15, 16 to 17, and 18 to 19 at their first births. For first and later born children, age at first birth is by definition, the mother's age at the first child's birth.

In our multivariate models, Model 1 provides baseline estimates of the relationship between mother's age at first birth and each of our outcomes, Model 2 adds child controls, and Model 3 adds characteristics of the mother, whether the focal child was conceived outside of marriage, and birth order. We also estimate a Model 4 in these analyses, in which we control for whether or not the mother was a teen at the focal child's birth. As before, we employ dummy variables for each of our age at first birth categories and the 20 to 21 age group is used as the contrast category in assessing the differential effects of mother's age at first birth.

Health and Psychological Well-Being

Bivariate Results

The results presented in Appendix B reveal that the probability of being classified as low birth weight tends to lessen with mother's age at first birth, but not in a perfectly consistent fashion. While we observed a statistical difference in the probability of low, but not very low gestational age when children were classified by their mother's ages at their own births, when we classify them according to their mother's ages at their first births, a statistically significant relationship emerges for the more severe, rather than the least severe indicator of low gestational age. A smaller percentage of children who were born at fewer than 28 weeks is observed as mother's age at first birth increases. There is little distinction in the use of well-baby care in the first year of life according to mother's age at first birth, except among children of the youngest mothers. The relationship between receipt of medical care for an illness in the first year and mother's age at first birth is less clear. The percentages taken

to a doctor or clinic due to an illness are comparatively low among children born both to the youngest and oldest mothers. The probability of having a health or physical limitation decreases with mother's age at first birth. The pattern for cognitive and emotional limitations is more striking. There is little difference in this indicator of psychological well-being when the children of teen and slightly older childbearers are compared. As was the case with mother's age at focal child's birth, children born to younger mothers are more likely than those born to comparatively older mothers to be classified with these difficulties. Despite an orderly progression of improvement with mothers' ages at first birth, however, children falling in the 20 to 21 age group are anomalous, however, with percentages more closely resembling those of children born to teen mothers.

Multivariate Results

Our next step was to examine the same outcomes, but in a multivariate context where we can control for socioeconomic factors that may have differentiated young women even before they became mothers. Table 10 provides the results of estimating logit models predicting low birth weight for children. While children in the youngest age at first birth group are observed to be statistically more likely to be classified as low birth weight than those in the contrast group (20 to 21), this association fades in Model 3 when controls for child and pre-existing maternal characteristics are introduced. However, when we account for these factors in Models 3 and 4, the data reveal that children born to relatively older teens are 40 percent less likely than those whose mothers were 20 to 21 at first birth to be born under weight. It is noteworthy that few of the controls we introduced were significantly associated with the odds of being low birth weight. The exceptions were being black and of a later birth order, both associated with greater odds of low birth weight.

As shown in Table 11, while children born to the youngest teen mothers are shown to be at a disadvantage in terms of the receipt of well-baby care in the first year of life (Model 1), the effect does not remain significant when controls are introduced (Models 3 and 4).

Table 12 reveals that the children of women who entered motherhood as teens are no more likely to have a disability or limitation than those who were 20 to 21 at first birth. The odds of having such difficulties are significantly lower for children whose mothers were at least 22 at first birth, however. The odds of visiting a psychiatrist or psychologist do not differ according to mother's age at first birth, as shown by the results presented in Table 13.

Cognitive Stimulation and Emotional Support in the Home Environment

Bivariate Results

Children born to comparatively older mothers show clearly higher scores on the HOME-SF, a measure of the quality of the child's home environment.

Multivariate Results

We observed in earlier analyses, which classified children according to their mothers' ages at their own births, that early childbearing was associated with less favorable home environments for children. Table 14 reveals that this disadvantage apparently carries over for later-borns as well. There is a nearly 11 point deficit in the quality of home environments provided by the youngest mothers when compared to those who were 20 to 21 at first birth when no other maternal characteristics are taken into account (Model 1). Even when socioeconomic factors are held constant, however, children of the youngest teen mothers have about a 5 point disadvantage in average scores. Among the children of mothers who were 16 to 17 at first birth, HOME-SF scores were 3 points lower, on average, than those of the comparison group, net of controls. HOME-SF scores among children of the oldest teen mothers are not statistically different from those whose mothers delayed childbearing into their early twenties.

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Cognitive Development and Educational Attainment

Bivariate Results

The children born to mothers who were relatively young teens at the time they had their first children score notably lower on tests of cognitive achievement. However, children born to mothers who were 18 to 19 at first birth do not appear different from women who were just over twenty when they became mothers.

Multivariate Results

Tables 15 through 17 provide results for models predicting children's performance on tests of mathematics, reading recognition, and reading comprehension ability, respectively. In terms of mathematics scores, we observe that the children born to women who were teens at first birth are not statistically different from their peers whose mothers were relatively older when they entered motherhood. In fact, children in the 18 to 19 mother's age at first birth category are more likely than those in the comparison group to have slightly higher mathematics scores. For reading recognition, a negative effect of early childbearing is observed, but only for the children in the youngest age group. Children whose mothers were 15 or less when they had their first child scored about 3 points lower, on average, on a test measuring their ability to recognize letters and words. Table 17 shows that children born to women who entered motherhood as teens are not distinguishable from those whose mothers were 20 to 21 at first birth in terms of reading comprehension.

Behavior Problems

Bivariate Results

Children born to the youngest mothers have comparatively more mother-rated behavior problems than those born to women who were relatively older when they first gave birth.

Multivariate Results

Table 18 provides results of models predicting the level of mother-reported behavior problems among children ages 4 to 14 net of other factors. Again, we observe that children born to the youngest mothers are not any more likely to exhibit conduct disorders than their peers born to women who entered motherhood between 20 to 21. Moreover, children born to the oldest teen mothers (18 to 19 at first birth) are actually at a slight advantage compared to the contrast group -- with scores about 3 points lower on average.

Differences by Race in the Effects of Early Childbearing on Child Well-Being

Given that previous studies have found differences by race in the effects of early childbearing on child well-being, we wanted to examine this question in the current analysis. The NLSY-CS was the only data set of the two we analyzed with a sufficient number of black cases to make separate analyses by race possible. We estimated, separately for blacks and non-blacks, the five models where significant effects of early maternal age at focal child's birth were observed for the full sample: PIAT tests in mathematics, reading recognition, and reading comprehension, the Behavior Problems Index, and the HOME-SF score.

As shown in the summary table presented in Table 19, different patterns for the two race groups emerged. Among blacks, children born to the youngest mothers ($\leq$ 17) had less cognitively stimulating and nurturing home environments (HOME-SF) and greater levels of behavior problems than children whose mothers were 20 to 21 at their births, net of controls for maternal background. Unexpectedly, black children of 18- to 19-year-olds had *higher* mathematics and reading recognition scores than the offspring of slightly older (non-teen) mothers. Among non-blacks, the comparative disadvantage of being born to a teen mother was observed among both the offspring of younger and older teen mothers in terms of both the HOME-SF and reading achievement. Children of the youngest teen mothers had significantly lower math and reading comprehension scores compared to their counterparts whose mothers were 20 to 21 at their births. Surprisingly, the level of behavior problems among white children of 20- to 21-year-olds was *greater* than for either teen mother group.

EVIDENCE FROM THE NSC: OUTCOMES FOR ADOLESCENTS AND YOUNG ADULTS

Relationships between Age of Mother at Focal Child's Birth and Child Well-Being

As with the NLSY-CS, we began with an examination of the bivariate associations between health and psychological well-being and mother's age at focal child's birth. The longitudinal nature of the NSC allows us to assess outcomes in both adolescence (in 1981, when youth were 11 to 16), and in young adulthood (when youth were ages 18 to 22). When measures at both time points are available, we begin with outcomes measured in 1981.

Health and Psychological Well-being

Bivariate Results

We examined several indicators of child well-being with the NSC, including low birth weight. There is no association between low birth weight status and mother's age at focal child's birth. Contrary to expectation, although in all five age categories the majority of mothers reported that their children were in excellent or very good health with no limitations, the greatest percentage is observed among the youngest mothers. In the expected direction, we observed that youth born to teen mothers were significantly more likely than the contrast group to report feeling sad or depressed often during the past month, but the relationship between the youth's receipt of psychological help as of 1981 and the mother's age at their birth was not significant. In 1987, health status was based on the youth's report rather than the mother's report, and the 1981 and 1987 findings differ. While both health status measures were reported to be excellent or very good with no limitations for the majority of youth in all categories, the proportions are lower in 1981 than in 1987 and opposite patterns of association with mother's age at focal child's birth emerge. On the 1987 measure, youth born to young teen mothers were somewhat less likely to report this favorable health status. Both the findings for depressive symptoms and the receipt of psychological help between 1981 and 1987 reveal a higher proportion of youth with 20 to 21 year old mothers to have less favorable ratings. However, youth born to the mothers 17 and younger were somewhat more

likely to have received psychological help as of 1987 probably because of the relatively large proportion who received help prior to 1981.

Multivariate Results

As before, we first examined the effects of teen motherhood on outcomes in the domain of health and psychological well-being. Odds ratios for models predicting a retrospective recall measure of low birth weight for youth ages 12 to 16 in 1981 are shown in Table 20. These multivariate models confirm bivariate findings; there is no association between low birth weight and mother's age at focal child's birth in the NSC data set. Two of the three child controls were found to be the only significant predictors of low birth weight, and of the two, race was the more salient. Black youth were twice as likely to have been low birth weight infants.

Similarly, teen motherhood has no effect on adolescent or young adult health status (see Tables 21 and 22). Child controls and other maternal characteristics are the important predictors. For instance, Model 1 of Table 21 shows that mother's age at focal child's birth does not predict to excellent or very good health status in 1981. Model 2 reveals that black youth are 50 percent less likely to have this favorable health status. Finally, Model 3 shows that only these child and mother predictors remain significant when circumstances preceding the child's birth are entered. We also find in this model that the probability of having good health status is significantly reduced by having a mother who never wanted the focal child and having a mother who was not in high school and had less than 12 years of education at conception of her first child.

Mother's age at focal child's birth is not a significant predictor of any outcomes in this domain. Findings for the psychological well-being outcomes measured in 1987 lend further support to this conclusion (see Tables 23-25). No significant associations are found.

Cognitive Development and Educational Attainment

Bivariate Results

Youth born to teen mothers are less likely to be rated favorably on measures of cognitive development and educational attainment. Children born to teen mothers were significantly less likely to be rated one of the best in the class by their teachers and parents and, among youth born to mothers ages 18 and 19, were more likely to have repeated a grade. Unexpectedly, youth born to the youngest mothers were least likely to report grade repetition as of the end of high school. The likelihood of high school completion increases with mother's age at the focal child's birth.

Multivariate Results

Model 3 of Table 26 shows that after controlling for all factors, youth born to mothers ages 17 or younger were 70 percent less likely to be rated one of the best students in the class by their teacher in 1981. It is interesting to note that this age effect does not become significant until all factors are entered, suggesting that one or more of the maternal characteristics suppresses this effect.

Teen motherhood has no effect on the parents' rating of school performance or grade repetition, net of other factors (see Tables 27 and 28). For these outcomes, the age association is significant only for youth born to mothers 25 or older. Compared to youth born to mothers 20 to 21, these youth born to older mothers were significantly more likely to have received a superlative school rating and less likely to have repeated a grade as of 1981.

Of the two outcomes measured in 1987, one revealed a significant effect of teen motherhood but in an unexpected direction. According to Model 3 of Table 29, being born to a mother age 17 or younger significantly reduces the odds of repeating at least one grade by the end of high school. However, as Table 30 shows, youth born to teen mothers have about the same probability of completing high school as youth born to mothers ages 20 to 21.

Behavior Problems and Substance Abuse

Bivariate Results

Generally, there is a negative association between conduct problems and the mother's age at the focal child's birth. Behavior problems reported in 1981 and delinquency in the past year decreased as the mother's age at the focal child's birth increased, yet there is no significant trend associated with the youth's runaway experience. It is interesting to note, however, that youth of mothers ages 18 to 19 were most likely to report having run away from home at least once. This group also has highest rate of illegal drug use. The rates of illegal drug use decline as maternal age increases, with one important exception. Youth born to the youngest mothers, the 17 and younger group, report the lowest rate of illegal drug use.

Multivariate Results

We first examined mother's age at focal child's birth as a predictor of behavior problems reported by the mother in 1981 (see Table 31). There was no association between teen motherhood and reported behavior problems, when mothers ages 20 to 21 are used as the contrast group. However, youth born to mothers ages 25 and older had significantly fewer behavior problems even after the addition of child controls, mother's background characteristics, and mother and child characteristics. Similarly, Table 32 shows that being born to a teen mother is not associated with the number of behavior problems reported for young adults in 1987, but being born to a mother age 25 or older is associated with significantly fewer problems.

In addition, we find that the odds of having committed one or more delinquent acts during the past year are not significantly different for youth born to teen mothers as compared to those born to mothers in our comparison group (ages 20 to 21) (Table 33). However, after controlling for all factors, youth born to mothers ages 25 or older were significantly less likely to have exhibited delinquency during the past year.

Youth born to mothers ages 18 to 19 were significantly more likely to have run away from home at least once, as shown in Table 34. In fact, net of all factors, the odds of this experience are seven times higher for these

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youth. It is interesting to note that youth born to mothers ages 17 or younger were three times more likely to have run away, but this odds ratio is not significant probably because of the relatively small number of youth in this category.

Finally, as Table 35 indicates, there is no association between mother's age at focal child's birth and illegal drug use in the past year.

Sexual Experiences and First Births

Bivariate Results

Youth born to mothers ages 17 and younger were the most likely to have experienced *nonvoluntary* sexual intercourse when compared to their peers born to comparatively older mothers. Regarding first *voluntary* sex, children of teen mothers are more likely than those with mothers who were older at their births to initiate sexual intercourse during early adolescence. Overall, a small proportion of youth had experienced the birth of a child by 1987, and there is no significant association between youth's age at first birth and mother's age at the youth's birth.

Multivariate and Life Table Results

From odds ratios for models predicting nonvoluntary sexual intercourse, we note that there is no significant effect of teen motherhood on this outcome (see Table 36).

We used life tables to examine the association between mother's age at focal child's birth and the other two outcomes in this domain. Table 37 shows that youth born to teens are more likely to initiate voluntary sexual intercourse during adolescence. Nearly one half of these youth had sexual intercourse for the first time before age 17, as compared to about one third of youth born to mothers in our comparison group. This trend remains until the youth become 19 years old. By then, the cumulative proportion of youth who have had sexual intercourse, 90 percent, is actually higher for youth born to mothers ages 20 to 21.

Table 38 shows that youth born to the youngest mothers are twice as likely to become parents before the age of 20. However, the proportion for youth born to mothers ages 18 to 19 is only slightly higher than the proportion for youth of 20 to 21-year old mothers.

Relationships between Age of Mother at First Birth and Child Well-Being

Health and Psychological Well-Being

Bivariate Results

We examined a variety of indicators of child health and psychological well-being. Generally, the proportion of youth who were low birth weight infants decreases with mother's age at first birth. Mothers who were teens at first birth also were less likely to report that their children were in very good or excellent health with no limitations. Similarly, youth born to mothers who were 15 years or younger at first birth were nearly twice as likely to report feeling sad or depressed often; the proportion of youth born to mothers in the 16- to 17-year-old group was slightly higher than the proportion born to mothers ages 20 to 21 at first birth, but among mothers 18 to 19, the proportion was somewhat lower. The other adolescent psychological well-being outcomes did not indicate significant effects of mother's age at first birth.

We also explored whether mother's age at first birth was associated with health outcomes in young adulthood. The only significant pattern we observed, however, was that the highest proportion of youth reporting excellent or very good health status with no limitations were those born to mothers ages 20 to 21 at first birth. The offspring of mothers who were teens at first birth were significantly less likely to report this favorable health status.

Multivariate Results

We first examined odds ratios for models predicting low birth weight (see Table 39). We found that in multivariate models there is no association between low birth weight reported in 1981 and mother's age at first birth. Two child controls, age and race, are the only significant predictors of low birth weight status.

Our second adolescent health outcome is presented in Table 40. Model 1 indicates that mothers aged 15 and younger and mothers 18 to 19 at first birth are significantly less likely than mothers ages 20 to 21 to report that their children are in excellent or very good health with no limitations. When child controls are entered in Model 2, these effects of teen motherhood remain significant. However, the addition of maternal background characteristics in Model 3 eliminates the significant effect of being born to a mother age 15 or younger at first birth, while being born to a mother 18 to 19 and being black continues to reduce the probability of this favorable health status. Surprisingly, having Catholic grandparents increases the probability as does not wanting to have the focal child. Finally, after controlling for all factors, the effect of being born to a teen mother becomes nonsignificant. This finding suggests that the initial bivariate association between age at first birth and this outcome may be explained at least in part by other maternal factors, such as never wanting to have the focal child and not being enrolled in high school while having less than 12 years of education at conception of first child.

We examined young adult outcomes in this domain and found that there is no association between age at first birth and youth-reported health status or level of depressive symptoms in 1987 (see Tables 41 through 44). However, being born to a mother who was 18 or 19 at first birth significantly reduced the odds of receiving or needing psychological help between 1981 and 1987, net of other factors. On the other hand, being born to a teen childbearer had no effect on the receipt of psychological help as of 1987.

Cognitive Development and Educational Attainment

Bivariate Results

We investigated the bivariate relationship between mother's age at first birth and several measures of cognitive development and educational attainment. School progress in 1981 is significantly associated with the timing of entry into motherhood. Comparatively smaller percentages of youth born to mothers ages 15 and younger at first birth and youth born to mothers 18 to 19 were rated one of the best in the class by their teacher, compared to the contrast group. Similarly, the proportion of youth rated one of the best in the class by their parents increased with mother's age at first birth. The findings for grade repetition also suggest that children of teen mothers are comparatively less likely to do well in school than their peers whose mothers had their first births after they entered their twenties. Moreover, there is a positive association between high school completion and mother's age at first birth.

Multivariate Results

Teen motherhood has no effect on teacher or parent ratings of school performance, compared with youth born to women who were 20 to 21 at first childbirth. However, we find that net of other factors, youth born to mothers ages 22 to 24 at first birth are twice as likely to be rated one of the best students in the class by their teacher, and, similarly, youth born to the oldest childbearers are 60 percent more likely to receive this superior rating from their parents (see Tables 45 and 46).

The effect of teen childbearing on the probability of grade repetition declines in significance when we control for background factors. In Model 1, youth born to mothers ages 16 to 17 and mothers ages 18 to 19 at first birth are significantly more likely to have repeated at least one grade as of 1981 compared to the offspring of 20 to 21 year old mothers. However, when all factors are controlled, the odds of grade repetition remain significantly higher only for youth born to mothers ages 18 to 19 (Table 47).

Similarly, teen motherhood initially exerts a profound effect on the likelihood of grade repetition as of 1987 (Table 48); having a mother 15 years or younger, 16 to 17, or 18 to 19 at first birth increases the odds two to nearly three fold. As Model 4 of Table 48 shows, the strong initial effect of the addition of child controls, maternal background characteristics, and other mother and child characteristics including whether the mother was 17 or younger at the focal child's birth diminishes the initial effect. Only youth born to mothers 18 to 19 at first birth remain significantly more likely to have repeated at least one grade net of other characteristics.

Table 49 shows a significant association between being a very young mother (≤15) and high school completion that remains net of other factors. Compared to the youth of mothers ages 20 to 21 at first birth, youth born to the youngest childbearers are 80 percent less likely to complete high school, while those born to the oldest childbearers are about three times *more likely* to complete high school than the contrast group.

Behavior Problems and Substance Use

Bivariate Results

We did not observe a significant difference in the proportion of children classified as having behavior problems in 1981 according to mother's age at first birth. However, teen childbearers, especially the very young, were significantly more likely to report problem behaviors among their young adult offspring in 1987. In contrast, although the trend for delinquency in the past year is significant, the proportion of youth who reported that they committed one or more delinquent acts actually is highest among those born to mothers ages 20 to 21 at first birth. The likelihood of running away from home generally decreases with mother's age at first birth, but the pattern is inconsistent. Youth born to mothers ages 18 to 19 at first birth have the highest proportion, 8.7 percent, who reported that they ran away from home at least once. However, the proportion for youth born to mothers in the 16 to 17-year-old group is lower than for youth born mothers ages 20 to 21.

We examined several measures of substance use for youth in 1987 and found that only the use of illegal drugs at least once in the past year to be associated with mother's age at first birth. Surprisingly, however, the

percentage making this unfavorable report is lower among youth born to mothers ages 15 or younger at first birth than for youth born to mothers in the comparison group.

Multivariate Results

As Table 50 reveals, there is no association between mother's age at first birth and the number of behavior problems reported for youth ages 12 to 16 in 1981. Yet, during young adulthood, significantly more behavior problems were reported for youth born to the youngest teen mothers, while significantly fewer were reported for youth born to mothers in the 25 and older category, even net of other factors (see Table 51).

Table 52 presents odd ratios for models predicting major delinquency, such as arson, assault, theft, or prostitution in the past year. After controlling for all factors, we find that the only significant age effect is having a mother who was 25 or older at first birth. This reduces the probability of committing one or more delinquent acts by 60 percent.

Initial models reveal that runaway behavior is significantly more likely among youth born to 18 to 19-year-old childbearers and less likely among youth born to mothers ages 22 to 24 at first birth compared to the offspring of 20- to 21-year-olds. However, as Table 53 shows, when all factors are controlled, only the effect of entering motherhood at 22 to 24 years remains significant.

Similarly, in Table 54 we note that youth of mothers in the 18 to 19-year-old group show significantly higher odds of illegal drug use in Model 1. However, the addition of mother and child characteristics eliminates this marginal effect of teen motherhood.

Sexual Experiences and First Births

Bivariate Results

The offspring of women who entered motherhood as teens are more likely to experience nonvoluntary sexual intercourse. Although the proportion generally decreases with mother's age at first birth, the proportion for youth born to mothers ages 15 or younger at first birth is lower than the proportion for youth born to mothers ages 20 to 21 (See Table B-32). The offspring of early childbearers also report earlier initiation of voluntary sex. Additionally, as compared to youth born to a 20 to 21 year old mother, youth born to youngest childbearers were significantly more likely to have become teen parents. Yet, perhaps surprisingly, youth born to mothers in our comparison group were more likely to become teen parents than youth born to mothers ages 16 to 17 and mothers ages 18 to 19.

Multivariate and Life Table Results

As Table 55 reveals, there is no association between mother's age at first birth and nonvoluntary sexual intercourse reported by youth in 1987.

Tables 56 and 57 show findings from life table analyses of the other outcomes in this domain. The offspring of teen mothers, especially very young teen mothers, are more likely to begin having sexual intercourse during adolescence. For instance, a full 52 percent of youth born to mothers age 15 and younger had sexual intercourse for the first time before age 17 and 95 percent before age 20. The comparative proportions are 39 percent and 86 percent for youth born to mothers ages 20 to 21.

Table 57 reveals that only youth born to mothers ages 15 and younger at first birth are likely to become teen parents themselves. Compared to teen births among youth in the comparison group, the proportions for youth born to older teen mothers are actually lower.

SUMMARY AND DISCUSSION

Our objective in this analysis has been to explore whether there is a relationship between early childbearing and child well-being. The primary focus of our analyses has been on whether the children born to women in their early and later teens face greater risks to development than those whose mothers were ages 20 to 21 at their births. Based on evidence from our analyses of 4 to 14 year olds in the NLSY-CS and of outcomes in adolescence and young adulthood using the NSC, we discuss each of the questions we posed at the outset of the study.

To what extent are children disadvantaged by being born to a teenage mother?

As we pointed out at the start of the paper, the answer to the question of whether the children of teen mothers have less positive development depends on the comparison group one uses. The bivariate tables presented in Appendix B generally showed an ordinal relationship -- as mother's age at focal child's birth increases, indicators of child well-being tend to improve. As shown in the summary presented in Table 58, however, when children born to 20- to 21-year-olds are used as the comparison group, fewer disadvantages for the children of teen childbearers are revealed, even at the bivariate level.

Are the consequences of teen childbearing specific to certain domains of child well-being?

In the NLSY-CS, significant effects of teen motherhood are observed in only two domains -- the quality of the home environment provided to the child and cognitive development. A significant effect of age of mother at focal child's birth was observed in our multivariate models predicting children's behavior problems, but it was in a counter-intuitive direction. Regarding cognitive ability, we found that children born to the youngest teen mothers performed significantly more poorly on tests of mathematics ability, reading ability recognition, and reading comprehension than children born to 20- to 21-year-olds. Negative effects were not observed for all teen births, however. That is, while children whose mothers were 17 or younger had significantly lower scores,

children born to mothers who were 18 to 19 tend to have equivalent cognitive test scores to those who were born to 20- to 21-year-olds. In terms of the quality of the home environment, however, children of both younger (≤17) and older (18 to 19) teen mothers were rated significantly less favorably than those born to mothers in their early twenties.

Deleterious effects of teen childbearing were observed in three domains in the NSC. Like the NLSY-CS results, our analyses of the NSC revealed significant associations with mother's age at focal child's birth in the cognitive domain. Compared to children born to 20- to 21-year-olds, the offspring of teenage childbearers were more likely to have repeated a grade and were less likely to be rated by their teachers as among the best students in the class.

The additional statistically significant effects in the NSC were observed in the domains of behavior problems and sexual experiences and first births. Children born to 18 to 19 year olds were significantly more likely than their counterparts in the contrast group to have run away from home. Life table analyses indicate that the probability of initiating sexual activity before age 17 was greater for children born to teens in comparison to those born to 20- to 21-year-olds. The likelihood of becoming a teen parent themselves was also shown to be greater for the offspring of teen mothers, most notably among the children of the youngest mothers.

Do the negative consequences of being born to a teen mother vary by life cycle stage? That is, do risks to positive development tend to increase or decline as the children of teen mothers grow up?

Our results show a persistently negative effect of early childbearing in the cognitive domain. Data from the NLSY-CS revealed that 4 to 14 year olds born to the youngest teen mothers performed more poorly on tests of cognitive ability, and NSC results showed that the offspring of teens were more likely to be retained and less likely to be perceived as performing favorably by their teachers by the time they reach high school age. In addition, behavior difficulties emerged among children in the older data set, the NSC -- running away from home, early sexual activity, and teen motherhood -- that were not necessarily forecast by results from the Behavior Problems Index in the NLSY-CS.

To what extent do mothers' background characteristics account for the negative effects of being born to a teen mother?

In the NLSY-CS, when there were significant bivariate associations (i.e. the home environment HOME-SF score and tests of cognitive ability), the relationships held even when socioeconomic background characteristics of mothers were held constant. Similarly, the greater probability of running away from home was revealed in both bivariate and multivariate analyses of the NSC. Unexpectedly, significant differences between the children of early childbearers and the contrast group in academic outcomes were revealed only after socioeconomic factors were held constant. Net of background variables, children of teen mothers were more likely to repeat a grade and less likely to be described by their teacher as one of the best students in the class.

It is important to point out that even with the controls for background characteristics that we included in our models the amount of explained variance in child outcomes (R^2) was generally quite low in our models. This is most likely due to our intentional omission of variables measuring circumstances in which the children of teenage childbearers are raised, such as their experience of poverty and marital disruption. When we estimated a series of models in which we controlled for some of the pathways by which effects on children occur, such as percent of the child's life spent in poverty, the explanatory power of our models notably improved.

Are there race differences in the effects of being born to a teen mother?

Models estimated separately for blacks and non-blacks in the NLSY-CS revealed different patterns across the two groups. Among blacks, children born to the youngest mothers (≤ 17) had less cognitively stimulating and less nurturing home environments (HOME-SF) and greater levels of behavior problems than children whose mothers were 20 to 21 at their births, net of controls for maternal background. Unexpectedly, black children of 18- to 19-year-olds had *higher* mathematics and reading recognition scores than the offspring of slightly older (non-teen) mothers. Among non-blacks, the comparative disadvantage of being born to a teen mother was observed among both the offspring of younger and older teen mothers in terms of both the HOME-SF and reading achievement. Children of the youngest teen mothers had significantly lower math and reading comprehension scores compared to their counterparts whose mothers were 20 to 21 at their births. Surprisingly, the level of behavior problems among white children of 20- to 21-year-olds was *greater* than for either teen mother group.

Are the subsequent children born to a teenage mother at a disadvantage, or just the first born?

A summary of findings for mothers' ages at first birth is provided in Table 59. In the NLSY-CS and NSC the patterns look very similar whether one classifies children according to mother's age at focal child's birth or mother's age at first birth -- with slightly different variables showing significant differences. According to mother's age at first birth, outcomes on which children of teen mothers compared less favorably with the children of 20- to 21-year-olds include low birth weight, the quality of the home environment, mathematics achievement, reading recognition achievement, receipt of psychological help, grade repetition, high school graduation, and behavior problems.

DISCUSSION

Our aim was to document the extent to which children born to teen mothers compare less favorably with their peers born to somewhat older mothers on a variety of indicators of well-being. We focused on the children of 20- to 21-year-olds as our primary contrast, based on the assumption that a year or two delay in childbearing is arguably the most feasible from the stand-point of policy intervention. We distinguished between the children of young teens ($\leq$ 17 years old) and somewhat older teens (18 to 19 years old). Using no statistical controls for any maternal characteristics other than mothers' age at the birth of the focal child, we found only a few marked differences when the children of teen mothers were compared to the children of 20- to 21-year-olds. Specifically, children of the youngest teen mothers were less likely to have received well-baby care in their first year of life, had less cognitively stimulating and less nurturing home environments, and obtained lower cognitive achievement scores than their peers whose mothers were 20 to 21 at their births. Among youth, we found that the children of very young teen mothers as well as those born to 18 to 19 year olds were more likely than the 20 to 21 year old contrast group to have voluntary intercourse before age 17. Moreover, the offspring of the youngest teen mothers were more likely to have a teen birth themselves.

Like previous researchers, our results provide evidence that teenage childbearers have socioeconomic disadvantages that are apparent even before they enter motherhood. Young mothers disproportionately come from single parent families, have more siblings, less well-educated parents, and were recipients of welfare at some point during their childhoods. When we statistically account for their less favorable circumstances and compare the well-being of children born to teen mothers to that of children whose mothers were 20 to 21 at their births, we generally find that the bivariate differences we observed hold true -- these children are more likely to have lower cognitive achievement scores and less cognitively stimulating and less nurturing home environments. But again the effects of early childbearing we find are limited to these domains only once we account for pre-existing differences in the characteristics of women who become teen mothers.

Do these modest results mean that being born to a teen mother does not matter for children? Our results do not persuade us to make that conclusion for several reasons. First, while we did not observe negative effects across a large array of domains, the effects we did observe are compelling. For example, the magnitude of the effect of being born to a mother who was 17 or less at the birth of the child on the quality of the child's home environment (-4.4) is on the order of one-third of a standard deviation -- putting these children at a sizable disadvantage relative to their peers. Moreover, the effect sizes for the three tests of cognitive achievement we examined were similar -- nearly a third of a standard deviation. The long-range implications of this poorer academic performance among the younger NLSY-CS old children are not clear, but it is noteworthy that with the NSC we observed that the offspring of the youngest mothers were more likely to repeat a grade in school and to be rated unfavorably by their teachers when they reached adolescence.

Another key point is that the group one uses for comparison purposes makes an important difference. Bivariate analyses presented in Appendix B reveal that the children of teen mothers compare quite unfavorably when their peers born to mothers who delayed childbirth until the mid- to late-twenties or older are used as the contrast. It is only when we compared the children of teen mothers to those whose mothers gave birth in their early twenties that modest effects are noted.

Finally, our results provide support for the premise that to the extent that there are negative effects of teen childbearing for children, the deleterious consequences generally extend to the subsequent children of teen mothers as well. We found similar patterns of results when we classified children both according to mothers' ages at their own births as well as mothers' ages at first birth.

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Exhibit 1

Dependent Variables Used in Analyses of Effects of Timing of Childbearing on Children

National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	**National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)**
Health Outcomes in the First Year of Life	
Low Birth Weight Parent reports child's actual weight at birth in ounces. Low birth weight indicators can be created to reflect any birth weight cut-offs of interest. Analyses of the National Health Interview Survey use the following cut-offs: very Low (<1500 grams); low (1500 to 2500 grams); and not low (>2500 grams). We created an indicator to reflect low (<2500 grams) versus not low (> 2500 grams) birth weight. mean = .09; range = 0,1.	**Low Birth Weight** Survey ascertains child's actual weight at birth in ounces. Indicators were created to reflect two standard conditions: low birth weight (3.4 to 5.5 lbs.) and very low birth weight (less than 3.4 lbs.). very low birth weight: mean = .01; range = 0, 1. low birth weight: mean = .05; range = 0, 1.
	Gestational Age Mothers are asked to report the length of the child's gestation in weeks. Two indicators were created: less than 38 weeks and less than 28 weeks. less than 38 weeks : mean = .19; range = 0, 1. less than 28 weeks: mean = .003; range = 0, 1.
	Well Baby Care During the First Year Mothers reported whether the child was taken to a doctor/clinic/HMO/community health center for well-baby care during the first year. mean = .92; range 0, 1.

National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
	Illness During First Year Mothers to reported whether the child was taken to a doctor/clinic/HMO/community health center for an illness during the first year. mean = .57; range = 0, 1.
Health Outcomes in Childhood and Young Adulthood	
	Physical, Mental, Emotional Condition Mothers were asked to report whether their child has a wide variety of physical, mental, and emotional conditions including: learning disability, minimal brain dysfunction, hyperkinesis/hyperactivity, asthma, respiratory disorder, speech impairment, serious difficulty in seeing or blindness, serious hearing difficulty or deafness, allergic conditions, serious emotional disturbance, speech impairment, crippled or orthopedic handicap, mental retardation, chronic nervous disorder, heart trouble, or other health limitations. Any health or physical limitation: mean = .06; range = 0, 1. Any cognitive limitation: mean = .02; range = 0, 1. Any emotional limitation: mean = .01; range = 0, 1. Any disability or limitation (all of the above): mean = .08; range = 0, 1
Overall Health Rating 1981 Mothers were asked to rate their child's health as: excellent, very good, good, fair, or poor. They were also asked to indicate whether the child has any physical or mental limitations. Excellent or very good health with no limitations: mean = .78; range = 0, 1.	**Health Limitations and Conditions** The NLSY-CS gathers information from mothers about the overall health status of their children. For example, mothers report whether the child has a health limitation that limits: school attendance, school work, or play activities; and whether the child has a health condition requiring attention from a doctor, the use of medicine or drugs, or special equipment. Any health limitation: mean = .05; range = 0, 1. Any health condition: mean = .07; range = 0, 1.

National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Overall Health Rating 1987 Youth were asked to rate their own health as: excellent, very good, good, fair, or poor. They were also asked to indicate whether they have any physical or mental limitations. Excellent or very good health status with no limitations: mean = .71; range = 0, 1	
Seen Psychologist (1981) Parent reported whether child has seen a psychiatrist, psychologist, counselor or therapist for any emotional, behavior, mental or family problem at any time as of 1981. mean = .13, range = 0, 1.	**Seen Psychologist** Mothers reported whether the child had seen a psychiatrist or psychologist in the past 12 months. mean = .05; range = 0, 1.
Seen Psychologist (1987) Youth received psychological help between 1981 (based on parent report) and 1987 (based on youth report), and/or in 1987 youth reported they felt the need for psychological help in the past 12 months. mean = .20; range = 0, 1. Youth reported they have seen a psychiatrist, psychologist, counselor or therapist for any emotional, behavior, mental or family problem at any time as of 1987. mean = .25; range = 0, 1.	

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National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Depression Scale The NSC contains a modified version of the Center for Epidemiological Studies Depression Scale (CES-D). This scale measures depressive symptomatology in the general population and consists of 12 items. The range is from 0 to 36; if 5 or more items are missing the scale is coded as missing. Individual items include: "During the past week...I felt sad; I was bothered by things that usually don't bother me; I did not feel like eating/my appetite was poor; I felt that I could not shake off the blues, even with help from my family or friends; I had trouble keeping my mind on what I was doing; I felt depressed; I felt that everything I did was an effort; I felt fearful; My sleep was restless; I talked less than usual; I felt lonely; I could not get going." mean = 8.7; s.d. = 6.7; range = 0 to 36.	
Quality of the HOME Environment Provided to the Child	
	Home Observation for Measurement of the Environment The HOME instrument consists of both maternal self-reports and interviewer observations. It was developed to assess quantitative and qualitative aspects of the child-rearing environment. Items are concerned with how the mother interacts with the child and structures the home environment. Different versions of the instrument are administered depending on the age of the child. The instrument consists of separate sub-scales for emotional support (α reliability = .49 for children ages 3-6) and cognitive stimulation (α reliability = .69) (Baker and Mott 1989; Zill and Coiro 1992). mean = 96.7; s.d = 16.2; range = 29.5 to 130.2.

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National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Cognitive Development and Educational Attainment	
	Peabody Individual Achievement Test - Mathematics The mathematics sub-scale of the PIAT assesses ability in mathematics, increasing in difficulty from simple recognition of numerals to advanced concepts such as geometry and trigonometry. mean = 97.7; s.d. = 13.0; range 65 to 135.
	Peabody Individual Achievement Test - Reading Recognition The reading recognition sub-scale measures word recognition and pronunciation ability. Children read a word silently then say it aloud. The 84 items included in the sub-scale range from preschool to high school levels. mean = 101.7; s.d. = 14.0 ; range 65 to 135.
	Peabody Individual Achievement Test - Reading Comprehension The reading comprehension sub-scale measures a child's ability to derive meaning from sentences that are read silently by selecting the one out of four pictures that best portrays the meaning. The sub-scale consists of 66 increasingly difficult items. mean 101.0; s.d. = 14.4; range = 65 to 135.
Grade Repetition (1981) Parent- reported response to "Has (he/she) repeated any grades for any reason? mean = .16; range = 0, 1.	**Grade Repetition** Mothers report whether their child has ever repeated any grades for any reason as well as the reason he/she repeated any grades: academic failure or lack of ability; immature, acts too young; truancy; etc.? mean = .28; range = 0, 1.

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National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Grade Repetition (1987) Youth-reported response to "Have you ever been held back or repeated a grade for any reason?" mean = .15; range = 0, 1.	
Parent Rating of School Performance (1981) Parent report of youth's class standing is measured by responses to the question "Is s/he: one of the best students in the class, above the middle of the class, in the middle of the class, below the middle of the class, or near the bottom of the class." one of the best in the class: mean = .26; range = 0, 1.	**Parent Rating of School Performance** For children ages 10 or older mothers are asked to report their child's class standing: "Is your child: one of the best students in the class, above the middle, in the middle, below the middle, near the bottom of the class?" one of the best in the class: mean = .25; range = 0, 1. above the middle: mean = .24; range = 0, 1. below the middle: mean = .43; range = 0, 1. near the bottom of the class: mean = .06; range = 0, 1.
Teacher Rating of School Performance (1981) Teachers are asked to report on youth's class standing via the question: "How did this student compare with others in his/her class last year in verbal ability? math ability? overall performance? One of the best students in the class, above the middle of the class, in the middle of the class, below the middle of the class, or near the bottom of the class." one of the best in the class: mean = .17; range = 0, 1.	
High School Graduation Youth has completed at least 12 years of high school or youth is 17 or 18 years old and has already completed the 11th grade. mean = .89; range = 0 ,1	

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National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Behavior Problems and Substance Use	
Behavior Problems Index Parents completed a brief rating scale of child behavior problems, rating the number of problems (0 to 17) that are "often true" or "somewhat true" of the youth during the past four weeks in 1987. Each positive response counts as 1 point on the scale. If 6 or more of the items are missing the scale is coded missing. Individual items include: "Tell me whether each statement has been often true, sometimes true, or not true of (YOUTH) during the past 4 weeks...feels or complains that no one loves her/him; cheats or tells lies; Is too fearful or anxious; has difficulty concentrating, cannot pay attention for long; is easily confused, seems to be in a fog; bullies, or is cruel or mean to other; does no seem to feel sorry after s/he does something wrong; is impulsive, or acts without thinking; feels worthless or inferior; is not liked by others of the same age; has difficulty getting his/her mind off certain thoughts, has obsessions; is restless or overly active, cannot sit still; has a very strong temper and loses it easily; is unhappy, sad, or depressed; is withdrawn, does not get involved with others; feels others are out to get her/him; and hangs around with kids who get in trouble." mean = 3.4; s.d. = 3.6; range = 0 to 17. Note: The 1981 version includesthe 17 aforementioned items and eight additional ones: has sudden changes in mood or feelings; is rather high strung tense or nervous, argues too much; is disobedient at home; is disobedient at school; is stubborn sullen or irritable; is secretive keeps things to (himself/herself); worries too much. mean = 7.9; s.d. = 5.8; range = 0 to 25.	**Behavior Problems Index** The Behavior Problem Index contained in the NLSY-Child data is a sub-set of items developed by Peterson and Zill (1986), primarily from Achenbach's (1978) Child Behavior Checklist. The BPI is administered to children ages 4 or older and measures mother's reports of the frequency and types of behavior problems. The items selected for inclusion in the NLSY test battery have a demonstrated ability to distinguish children referred for psychological treatment from typical children. The total scale score (α reliability = .86) has psychometric properties preferable to any of the available sub-scales (Baker and Mott, 1989). We will use same-sex standard scores in our analyses. Higher scores on the index imply a greater level of behavioral problems. mean = 106.4, s.d. = 14.5, range = 68 to 149.

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National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Drug Use Gutman-type scales are available to measure youth-reported drug use in 1987. Categories are: 0) have used no illegal drug, alcohol, or tobacco; 1) used alcohol/tobacco but no illegal drug; 2) used marijuana but no other illegal drugs; 3) used an illegal drug that was not marijuana, but used less than once a month; and 4) used an illegal drug other than marijuana at least once a month. Individual questions include: "ever tried alcohol, other than a sip; ever tried tobacco; ever tried marijuana/hashish; ever tried cocaine/crack; ever tried other non-prescription drug use; how often used cocaine in past year; and how often used other non-prescription drug in past year." For multivariate analyses, we combined categories two through four and referred to any illegal drug use during the past year. mean = .22; range = 0, 1.	
Delinquency Scale A scale created from 9 items. The following items are coded not at all, 1 or 2 times, 3 to 11 times, or 12 or more times: "How often did you do this in the past 12 months...purposely damaged or destroyed property belonging to someone else?; carried a hidden weapon other than an ordinary pocket knife?; stolen or tried to steal a motor vehicle such as a car or motorcycle?; stolen or tried to steal something else worth more than $50?; Purposely set fire to a building, a car or other property or tried to do so?; Attacked someone with the idea of seriously hurting or killing her or him?; and Gotten paid for having sexual relations with someone?; Sold marijuana or hashish?; Sold hard drugs such as heroin , cocaine or LSD?" mean = .15; range = 0, 1.	
Whether Youth Ever Ran Away Youth reported whether, before they turned 18, they ever ran away from home. mean = .05; range = 0, 1.	

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National Survey of Children (Youth ages 12 to 16 in 1981 and 18 to 22 in 1987)	National Longitudinal Survey of Youth - Child Supplement (Children ages 4 to 14 in 1990)
Sexual Experiences and First Births	
Nonvoluntary Sexual Intercourse Youth were asked: " Have you ever been forced to have sex against your will or been raped?" mean = .07, range = 0, 1.	
Age at First Sexual Intercourse Youth were asked to report how old they were when they (voluntarily) had sexual intercourse for the first time. First voluntary sexual intercourse before age 17: mean = .38, range = 0, 1.	
Youth's Age at First Birth Youth's age at first birth is calculated from the youth's birth date and the birth date of her/his oldest child, where applicable. First birth before age 20: mean = .12, range = 0, 1.	

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